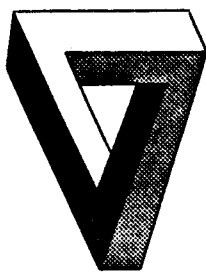
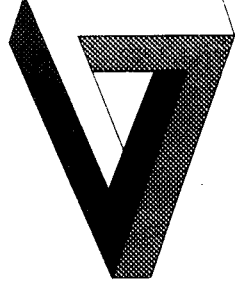


SMALL SCALE ASTM E 119/UL 263
FIRE TESTING
FOR
US ARCHITECTURAL PRODUCTS
ON ONE HOUR
LOAD BEARING CEM-STEEL FLOOR ASSEMBLY
VTEC #100-1719-2
TESTED: MAY 7, 2003
REVISION 1.0: FEBRUARY 18, 2004



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VTEC Laboratories Inc.

May 9, 2003

Client: US Architectural Products
55 Industrial Circle
Lincoln, RI 02865

Attn: Mr. Robert Cauley

Subject: Small Scale ASTM E 119/UL 263 Fire Endurance Screening
Testing on Load Bearing CEM-Steel Floor Assembly 78" x
78" x 10" Thick.

SAMPLE DESCRIPTION (by Client):

- 1- CEM-Steel Board 5/8" thick with 26 gauge galvanized steel plate facing down and screw fastened direct to steel framing with #8 x 1-5/8" ITW Buildex S-12 Rock-On Climacoat screws. Fastener spacing 12" o.c. along steel 'C' joists and at perimeter.
- 2- Galvanized steel 'C' joists, 8" depth x 18Ga thickness x 1-5/8" flange width. Joists spaced at 24" o.c. maximum. Double joists only at end of panel.
- 3- Galvanized steel 'perimeter channel' receiving ends of 'C' joists, 18Ga minimum. Screw fastened to top & bottom flange of 'C' joist with #10 x 1/2" corrosion resistant self-drilling 'Tek' screws.
- 4- Galvanized steel web stiffener, 3-5/8" x 18Ga, placed inside 'C' joist flange and screw attached to web of 'C' joist with three #10 x 1/2" corrosion resistant self-drilling 'Tek' screws.
- 5- Galvanized single leg resilient furring channel, 1/2" deep x 25Ga minimum at 16" o.c. screw fastened to bottom flange of 'C' joist with #10 x 1/2" corrosion resistant self-drilling 'Tek' screws.

- 6- Mineral wool insulation 2.5lbs. pcf density x 3" thick x 24" wide batts in joist cavity.
- 7- One layer of 5/8" Type 'X' gypsum board, screw fastened to resilient furring channels with #6 x 1" drywall screws at 12" o.c.

PROCEDURE:

The furnace measures nominally 5 ft x 5 ft x 7 ft. The outside construction is steel and the furnace is lined with a ceramic refractory insulation.

Four burners, one centered on each wall, provide uniform heat. Each burner is rated for 1.5 million Btu/hr and is of the flat flame or non-impinging flame design. Furnace conditions are monitored by four 1/4" grounded Inconel-sheathed chromel-alumel thermocouples.

The unexposed surface temperature of the sample was monitored by nine, 20-gauge type K, fiberglass sheathed thermocouples. An insulating pad was placed over each thermocouple on the unexposed side of the sample.

The fire test was run following the E119/UL263 time-temperature curve.

The endpoint for the E119/UL263 Fire Endurance Testing occurs when either all the thermocouples on the unexposed side of the sample reach an average of 250°F + ambient starting temperature, any individual thermocouple on the sample exceeds 325°F + ambient starting temperature, or when the sample experiences burn-through.

Disclaimer: This test should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions. It should not be used to describe or appraise the fire hazards or fire risks of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment that takes into account all of the factors that are pertinent to an assessment of fire hazard of a particular end use.

Notice: VTEC Laboratories Inc. will not be liable for any loss or damage resulting from the use of the data in this report, in excess of the invoice. This report pertains to the sample tested only. Such report shall not be interpreted to be a warranty, either expressed or implied as to the suitability or fitness of said sample for such uses or applications, as the party contracting for the report may apply such sample.

RESULTS:

At 8 minutes smoke began to emit from the 'C' joist.

At 10 minutes smoke began to emit from between CEM-Steel board and metal deck.

At 22 minutes there were flames from the seam of gypsum boards on the exposed side of the sample.

At 28 minutes the gypsum board cracked on exposed side of the sample.

At 38 minutes the exposed gypsum board started to separate from the metal frame.

At 40 minutes the exposed gypsum board fell down.

At 55 minutes smoke began to emit from the center of the unexposed side of the sample.

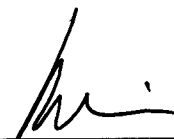
At 63 minutes the furnace was voluntarily shut off and the test was ended without reaching any of the failure end points.


The sample as described above passed the ASTM E 119/UL 263 test for a one-hour rating.

Time Deflection Data

<u>TIME (MINS)</u>	<u>DEFLECTION (INCHES)</u>
22	1/8"
27	1/2"
30	5/8"
34	3/4"
42	7/8"
53	1"
63	1"

The time-temperature data are contained on the following pages.

 REV. 1.0
 Neil Schultz
 Executive Director


 Amirudin Rahim
 Technical Director

REVISION 1.0: Added "UL 263" next to "ASTM E 119"

Time (min)	TC 1 Sample Deg. F	TC 2 Sample Deg. F	TC 3 Sample Deg. F	TC 4 Sample Deg. F	TC 5 Sample Deg. F	TC 6 Sample Deg. F	TC 7 Sample Deg. F	TC 8 Sample Deg. F	TC 9 Sample Deg. F	TC 10 Furnace Deg. F	TC 11 Furnace Deg. F	TC 12 Furnace Deg. F	TC 13 Furnace Deg. F	TC 14 Sample Average Deg. F	TC 15 Furnace Average Deg. F
0	68	67	67	67	67	67	67	67	67	99	93	92	92	67	94
1	68	67	67	67	67	67	67	67	67	155	154	153	155	67	154
2	68	67	67	67	67	67	67	67	67	378	348	327	317	67	342
3	68	67	67	67	67	67	67	67	67	553	509	487	470	67	505
4	68	67	67	67	67	67	67	67	67	857	791	780	742	67	793
5	68	67	67	67	67	67	67	67	67	1066	996	975	938	67	994
6	68	67	67	67	67	67	67	67	67	1170	1109	1096	1065	67	1110
7	68	67	67	67	67	67	67	67	67	1232	1169	1166	1147	67	1178
8	68	67	67	67	67	67	67	67	67	1269	1214	1210	1203	67	1224
9	68	67	67	67	67	68	67	67	67	1293	1238	1235	1239	67	1251
10	68	67	68	67	67	71	67	67	68	1344	1290	1287	1292	68	1303
11	68	68	69	67	67	74	67	67	69	1372	1323	1318	1324	68	1334
12	68	68	71	67	67	78	67	68	70	1391	1342	1336	1345	69	1353
13	68	69	73	68	68	82	68	68	72	1407	1359	1359	1363	71	1372
14	69	70	76	68	69	86	69	69	74	1428	1381	1379	1380	72	1392
15	69	71	78	68	70	89	69	70	76	1432	1390	1389	1391	73	1401
16	69	72	81	69	71	93	70	71	78	1459	1418	1415	1418	75	1427
17	70	73	84	69	72	96	71	73	81	1467	1426	1423	1425	77	1435
18	71	75	87	70	74	100	73	74	83	1472	1431	1429	1430	78	1441
19	71	77	90	71	75	103	74	75	86	1485	1444	1439	1443	80	1453
20	72	78	94	72	76	105	75	77	88	1491	1453	1448	1453	82	1461
21	73	80	97	73	78	108	76	78	91	1504	1467	1464	1463	84	1475
22	74	82	99	74	80	110	78	80	94	1508	1478	1477	1478	86	1485
23	75	84	102	75	81	112	79	81	96	1519	1492	1490	1488	87	1497
24	76	85	104	76	83	114	80	83	98	1525	1502	1497	1497	89	1505
25	78	87	106	77	85	115	81	84	101	1530	1504	1502	1499	90	1509
26	79	89	109	78	86	116	82	85	102	1543	1515	1514	1515	92	1522
27	80	91	110	79	88	117	84	87	104	1547	1520	1518	1522	93	1527
28	82	92	112	81	90	118	85	88	105	1552	1528	1525	1524	95	1532
29	83	94	113	82	91	119	86	89	106	1558	1536	1531	1534	96	1540
30	85	95	114	83	92	120	88	90	108	1568	1548	1545	1541	97	1550
31	87	97	115	84	94	120	89	91	109	1575	1552	1550	1547	98	1556
32	89	98	116	86	95	121	90	93	111	1582	1560	1556	1557	100	1564
33	91	100	117	87	96	122	91	94	112	1592	1570	1567	1564	101	1573
34	93	101	119	89	98	123	93	96	114	1596	1575	1572	1572	103	1579
35	95	103	120	91	99	124	94	97	116	1603	1583	1578	1576	104	1585
36	97	105	121	92	101	125	96	99	118	1609	1586	1586	1584	106	1591

Time (min)	TC 1 Sample Deg. F	TC 2 Sample Deg. F	TC 3 Sample Deg. F	TC 4 Sample Deg. F	TC 5 Sample Deg. F	TC 6 Sample Deg. F	TC 7 Sample Deg. F	TC 8 Sample Deg. F	TC 9 Sample Deg. F	TC 10 Furnace Deg. F	TC 11 Furnace Deg. F	TC 12 Furnace Deg. F	TC 13 Furnace Deg. F	TC 14 Sample Average Deg. F	TC 15 Furnace Average Deg. F
37	99	107	123	94	103	127	98	101	121	1612	1587	1590	1587	108	1594
38	101	109	125	96	106	128	100	104	123	1619	1595	1597	1591	110	1600
39	104	111	126	99	108	129	102	106	125	1622	1599	1598	1597	112	1604
40	107	114	128	101	111	131	104	110	127	1626	1604	1615	1601	115	1612
41	110	117	130	105	114	133	107	113	130	1630	1608	1618	1603	117	1615
42	113	119	130	108	117	134	110	116	132	1636	1613	1626	1608	120	1621
43	116	122	132	112	121	136	114	119	134	1643	1620	1633	1616	123	1628
44	120	125	133	116	127	138	119	124	136	1648	1625	1642	1621	126	1634
45	123	129	136	123	134	141	125	130	138	1651	1630	1644	1625	131	1638
46	125	134	144	131	143	145	132	138	140	1658	1634	1646	1629	137	1642
47	127	140	152	141	154	149	140	147	143	1664	1640	1657	1636	144	1649
48	139	148	146	153	168	155	149	159	145	1670	1644	1662	1641	151	1654
49	147	156	150	167	185	160	159	169	148	1672	1647	1667	1642	160	1657
50	155	166	154	180	201	166	170	178	151	1677	1649	1669	1643	169	1660
51	164	176	158	193	212	172	181	185	155	1684	1655	1675	1650	177	1666
52	174	186	164	201	215	179	190	191	158	1688	1659	1681	1658	184	1672
53	183	195	169	205	215	186	197	195	162	1690	1665	1683	1660	190	1675
54	201	209	180	209	219	193	202	199	166	1692	1671	1687	1662	198	1678
55	208	214	186	210	217	198	204	202	171	1690	1682	1690	1665	201	1682
56	206	220	185	210	214	200	205	204	174	1691	1685	1696	1674	202	1686
57	209	224	190	210	214	202	206	206	179	1691	1690	1699	1679	205	1690
58	210	228	195	212	215	203	208	208	184	1692	1699	1703	1680	207	1694
59	211	231	198	212	216	203	208	210	189	1693	1704	1708	1683	209	1697
60	214	236	202	213	218	204	209	211	195	1694	1707	1710	1687	211	1699
61	214	243	202	214	219	204	210	213	200	1700	1712	1715	1691	213	1705
62	216	248	204	215	220	205	211	215	204	1706	1719	1721	1701	215	1712
63	217	253	205	215	223	205	212	216	205	1707	1719	1721	1705	217	1713